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CABOT TECHNICAL REPORT

NO. R-9

JULY, 1952

VULCAN C

CONDUCTIVE FURNACE BLACK

COMPARISONS WITH

ACETYLENE BLACK AND WITH HAF BLACK

CABOT

GODFREY L. CABOT, INC.
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CABOT

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Godfrey L. Cabot, Inc. 77 Franklin Street, Boston 10, Mass.

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Foreword

Cabot has introduced a conductive furnace black, Vulcan C. This black is similar to Vulcan 6, the new Cabot black with reinforcing characteristics markedly superior to Vulcan 3. Vulcan C, however, will be carefully controlled for electrical properties.

The data which follow show that in various applications Vulcan C is either equal to or better than Acetylene Black in electrical conductivity. In addition to its outstanding performance electrically, it provides a very high level of reinforcement, notably in tensile strength and abrasion resistance. Processing characteristics do not differ appreciably from those associated with HAF blacks.

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VULCAN C

CONDUCTIVE FURNACE BLACK

I. VULCAN C VERSUS ACETYLENE BLACK

A. In Natural Rubber

	Electrical Resistance ohm-cm.	
	Vulcan C	Acetylene Black
1. Natural rubber tread stock, 50 parts black, Captax acceleration		
Brass electrodes molded in strips (7" x 1" x $\frac{1}{4}$") at 20 volts	160	215
Brass electrodes molded on blocks (2" x 1" x 1") at 20 volts	580	645
Same formulation, compounds subjected to deformation (Goodrich flexometer samples with molded-in electrodes)		
After 1,000 cycles	1125	1850
After 10,000 cycles	1400	1450
2. Natural rubber tread stock, 50 parts loading (experiments with various electrode systems)	60-100	80-120
3. Natural rubber tread stock, 50 parts loading, Captax acceleration. (After usual mixing procedure, stocks were remilled five times, with 24 hours rest period between millings. Each milling was 8', total remilling 40'.)	1800	1700

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	Electrical Resistance ohm-cm.	
	Vulcan C	Acetylene Black
4. Natural rubber cement. Cement concentration 10%, black concentration 50 parts per 100 rubber	15-20	50
5. Paper coated with natural rubber cement	5-8	53
6. Natural rubber latex coating, 50 parts black	1.2-2.1	1.5
B. In Cold Rubber		
1. Cold rubber tread stocks, 50 parts black, Santocure acceleration. (Electrical tests by NBS Method)	235	5330

VULCAN C

CONDUCTIVE FURNACE BLACK

	Electrical Resistance ohm-cm.	
	Vulcan C	Vulcan 3
II. VULCAN C VERSUS VULCAN 3		
A. In Natural Rubber		
1. Natural rubber tread stock, 40 parts black	2000	16,000
B. In Cold Rubber		
1. Cold rubber tread stock, 50 parts black	700	97,000

Note: Variations in actual levels of electrical resistivities above are due to the use of varying test apparatus and procedures. Relative values are not affected.

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